

This resource assessment is designed to gather and display information specific to Grand County, Utah. This report will highlight the natural and social resources present in the county, detail specific concerns, and be used to aid in resource planning and target conservation assistance needs. This document is dynamic and will be updated as additional information is available through a multi-agency partnership effort. The general observations and summaries are listed first, followed by the specific resource inventories.

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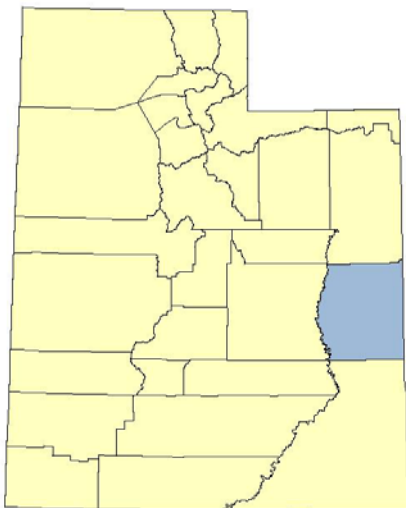
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Introduction

Grand County is located in the middle-eastern part of the state, stretching from the Eastern bank of the Green River to the edge of Colorado. It is 2,363,962 acres in area.

There are 101,699 acres of private land, 52,729 acres of which is farmland. Of the 94 farms in Grand County, most farms are between 1 and 179 acres, and about 60% of farms are less than 50 acres. About 70% of farmland in Grand County is pasture, about 23% is cropland and 7% is of other uses.

There are 1,617,793 acres of federal land in the county including military land. There are 369,426 acres of state land including wildlife reserves. 198,134 acres of the county is Tribal land, 146 acres of the county is water, and 76,602 acres of the county is National Parks.

Equal Opportunity Providers and Employers.



General Land Use Observations

Grass / Pasture / Hay Lands

- Complications related to overgrazing include poor pasture condition, soil compaction and water quality issues.
- Control of noxious and invasive plants is an ever increasing problem.
- The small, part-time farms are less likely to adopt conservation due to cost and low farm income.

Row & Perennial (orchards / vineyards / nurseries) Crops

- Residue, nutrient and pest management are needed to control erosion and to protect water quality.
- The small, part-time farms are less likely to adopt conservation due to cost and low farm income.

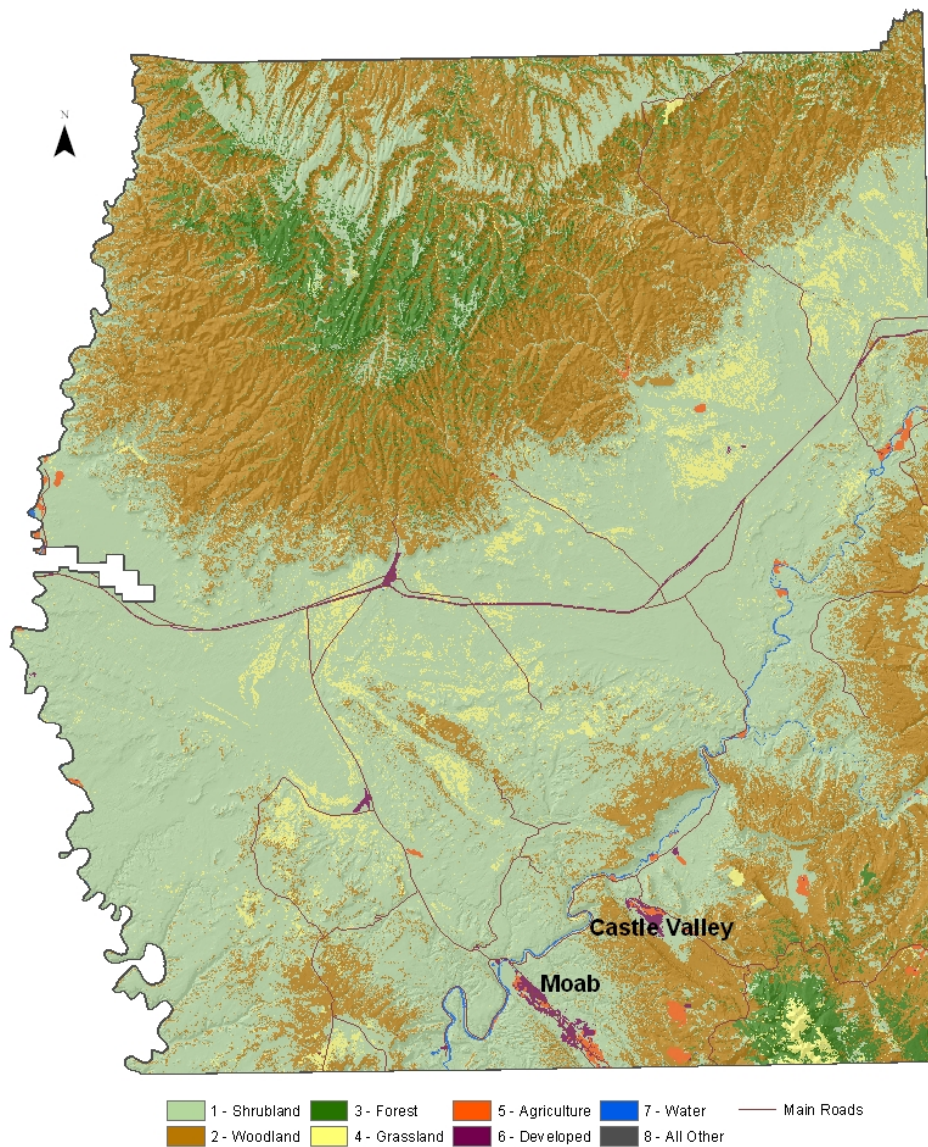
Forest

- On private, non-industrial forest there are issues with erosion, water quality and forest productivity
- On non-industrial forest land, landowner objectives are not often on actively managing the land for timber production.
- Land use constraints and the lack of economic incentives further discourage conservation.

Resource Assessment Summary

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
Soil	medium	sheet and rill, wind, contaminants and other chemicals
Water Quantity	high	reduced capacity of conveyances by sediment deposition, excessive runoff, flooding, ponding
Water Quality Ground Water	medium	excessive salinity in groundwater
Water Quality Surface Water	high	excessive salinity in surface water; excessive salinity from Colorado River
Air Quality	low	no major concerns
Plant Suitability	low	some plants are not well adapted
Plant Condition	low	noxious and invasive plants
Fish and Wildlife	medium	inadequate water quality and quantity
Domestic Animals	low	inadequate stock water, inadequate quantities and quality of feed and forage
Social and Economic	low	full time vs. part time agricultural communities

Land Cover

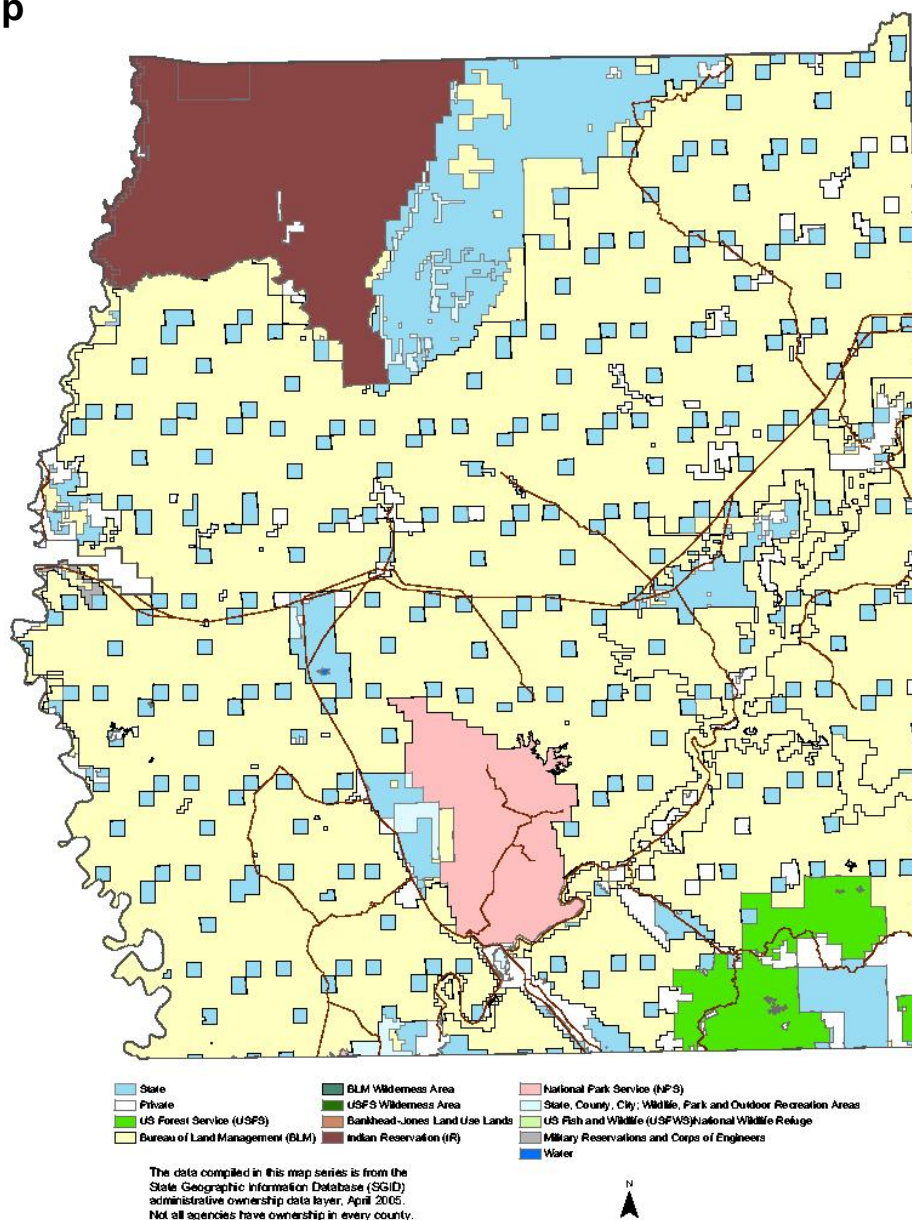


Land Cover/Land Use		
	Acres	%
Forest	150,016	50%
Grain Crops	6,100	2%
Grass/Pasture/Haylands	1,664	1%
Orchards/Vineyards	80	0%
Row Crops	111	0%
Shrub/Rangelands	137,270	46%
Developed	5,825	2%
Water	146	0%
Grand County Totals *b	301,212	100%
*a: Estimate from Farm Service Agency records and include CRP/CREP. *b: Totals may not add due to rounding and small unknown acreages.		

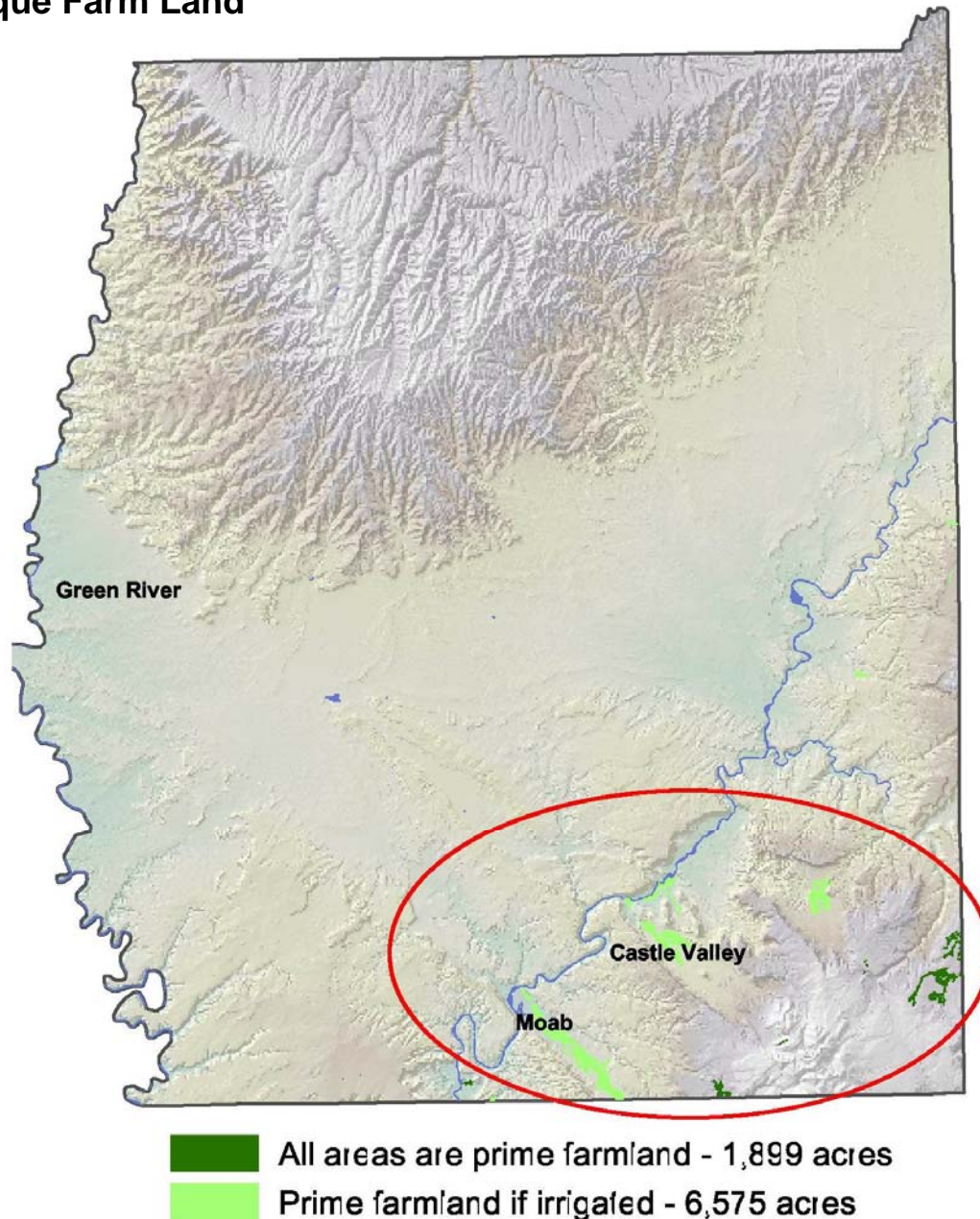
Special Considerations for Grand County:

- There are 80 acres of orchards.
- Grass/Pasture/Hay includes approximately:
 - 2091 acres of hay
 - 2122 acres of pasture
- Row crops include a variety of field and vegetable crops grown for the cannery processing and fresh market.
- Shrub/rangelands consist of pinyon, juniper and sagebrush.
- A negligible percent of the county consists of urban land uses within metropolitan areas.
- There are 56 acres of cantaloupes in Grand County.
- There are 45 acres of watermelons in Grand County.

Land Ownership



Prime & Unique Farm Land



Prime farmland

Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion.

Unique farmland

Land other than prime farmland that is used for the production of specific high-value food and fiber crops such as citrus, tree nuts, olives, cranberries, fruits, and vegetables.

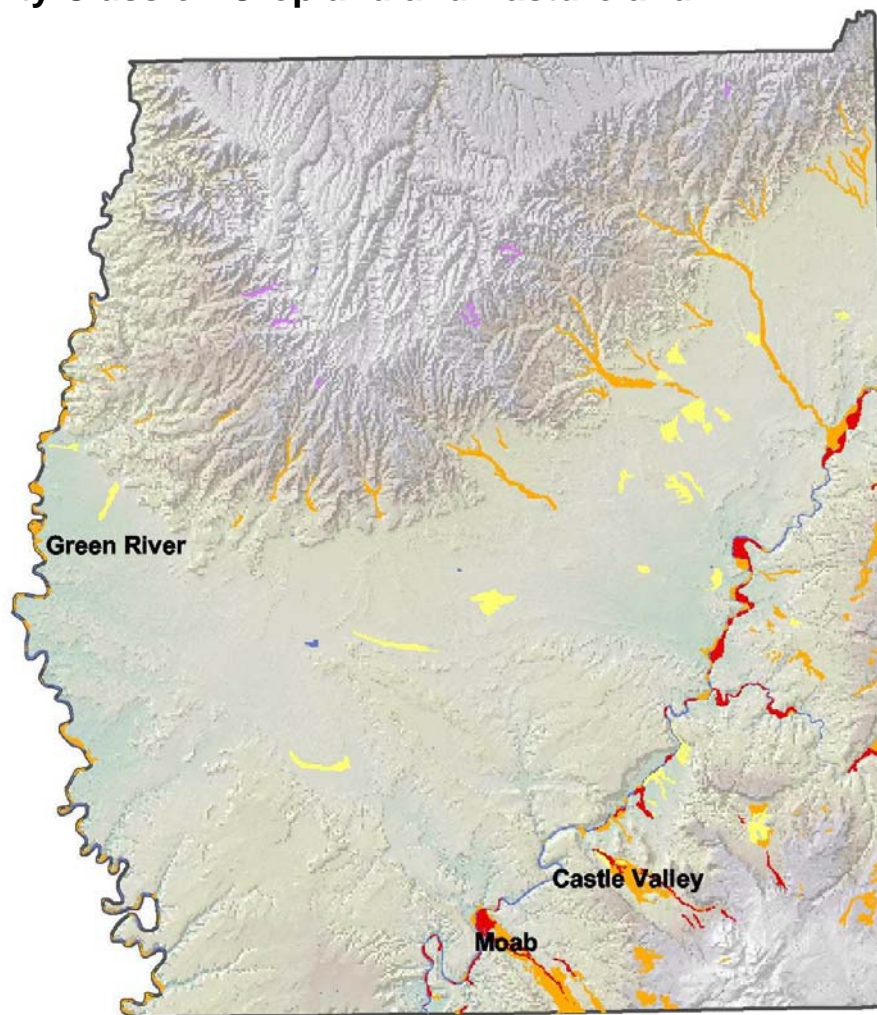
Additional farmland of statewide or local importance

Land identified by state or local agencies for agricultural use, but not of national significance.

Resource Concerns – SOILS

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Soil Erosion	Sheet and Rill				X	X										
	Wind	X			X	X										
	Ephemeral Gully	X	X	X												
	Classic Gully	X	X	X												
	Streambank								X							
	Shoreline															
	Irrigation-induced	X	X	X												
	Mass Movement															
	Road, roadsides and Construction Sites															
Soil Condition	Organic Matter Depletion	X	X	X												
	Rangeland Site Stability				X	X										
	Compaction	X	X													
	Subsidence															
	ContaminantsSalts and Other Chemicals	X												X		
	Contaminants: Animal Waste and Other OrganicsN															
	Contaminants: Animal Waste and Other OrganicsP															
	Contaminants: Animal Waste and Other OrganicsK															
	Contaminants : Commercial FertilizerN															
	Contaminants : Commercial FertilizerP															
	Contaminants : Commercial FertilizerK															
	ContaminantsResidual Pesticides															
	Damage from Sediment Deposition															

Land Capability Class on Cropland and Pastureland

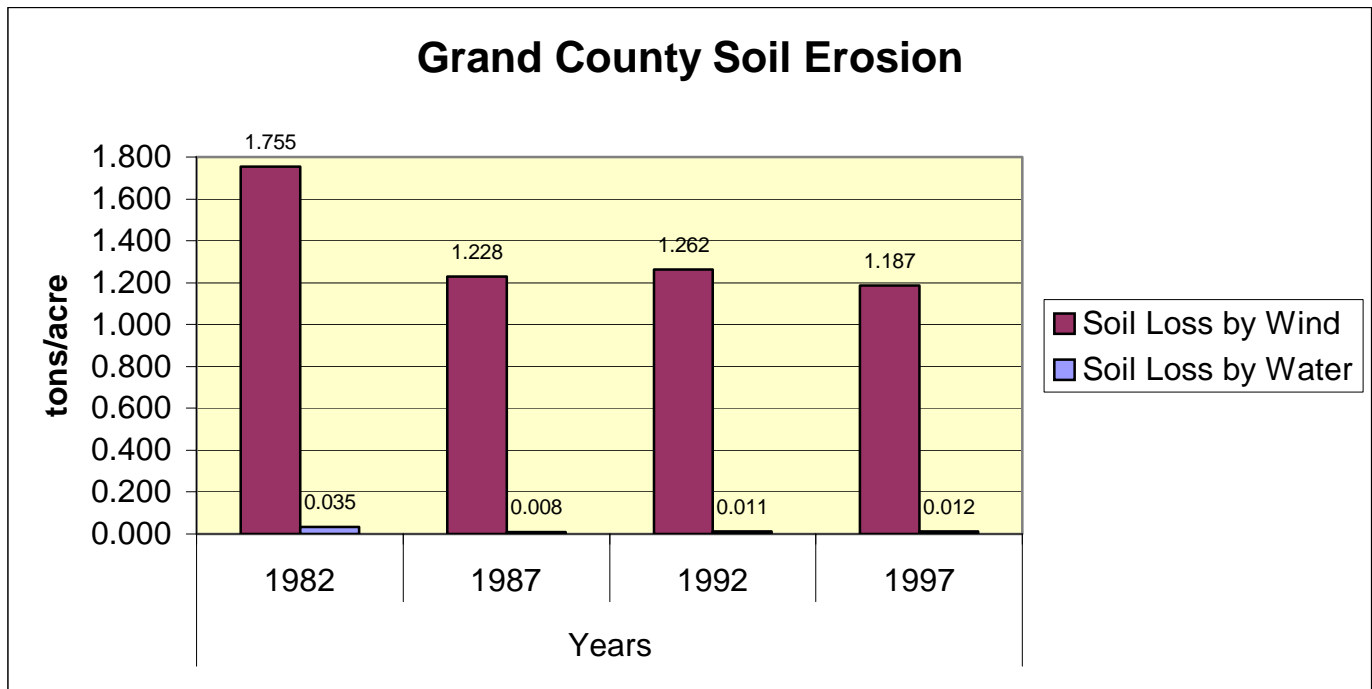


Land Capability Class



		Acres	Percentage
Land Capability Class (Irrigated Cropland & Pastureland Only)	I - slight limitations	0	0%
	II - moderate limitations	13,318	24%
	III - severe limitations	32,774	59%
	IV - very severe limitations	8,478	15%
	V - no erosion hazard, but other limitations	0	0%
	VI - severe limitations, unsuited for cultivation, limited to pasture, range, forest	951	2%
	VII - very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife	0	0%
	VIII - misc areas have limitations, limited to recreation, wildlife, and water supply	0	0%

Soil Erosion

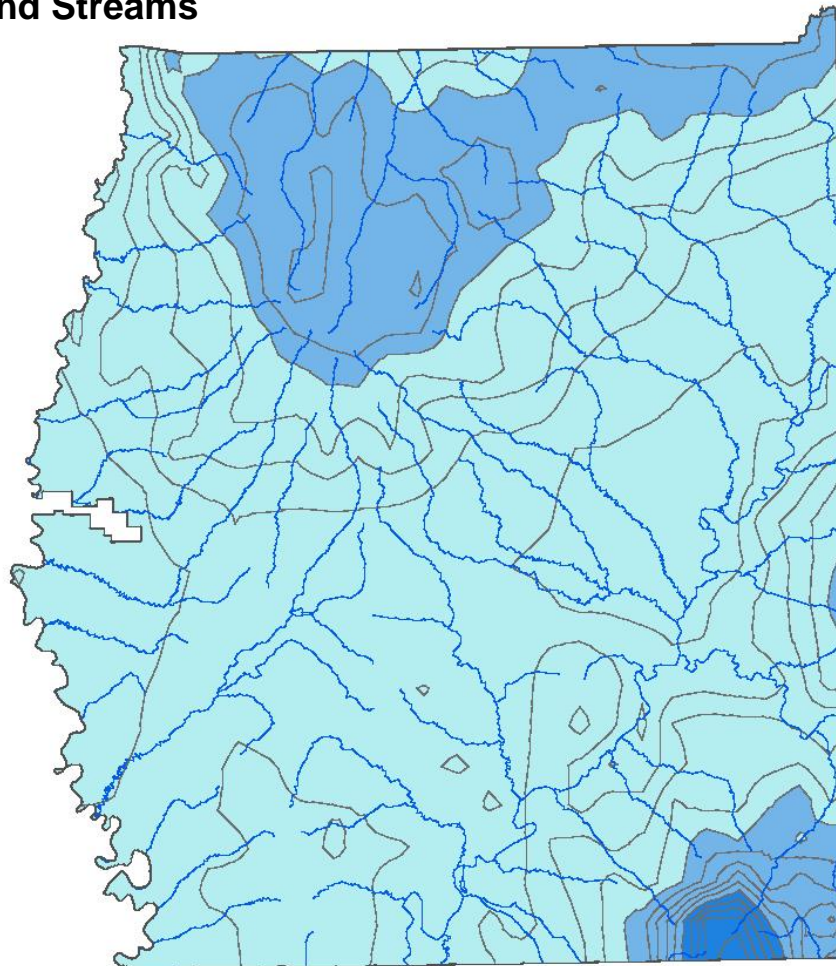


- ❖ Sheet and rill erosion by water on the sub basin croplands and pasturelands have been reduced by more than 0.6 tons per acre of soil from 1982 to 1997.
- ❖ Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the nation's waters.
- ❖ Through NRCS programs many farmers and ranchers have applied conservation practices to reduce the effects of erosion by wind. As a result, erosion rates on croplands and pasturelands fell 32% from 1.755 to 1.187 tons/acre/year from 1982 to 1997.

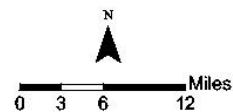
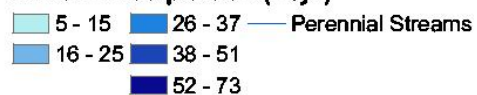
Resource Concerns – WATER

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Water Quantity	Water Quantity – Rangeland Hydrologic Cycle															
	Excessive Seepage															
	Excessive Runoff, Flooding, or Ponding	X	X	X	X	X	X		X							
	Excessive Subsurface Water															
	Drifted Snow															
	Inadequate Outlets															
	Inefficient Water Use on Irrigated Land															
	Inefficient Water Use on Non-irrigated Land	X	X	X												
	Reduced Capacity of Conveyances by Sediment Deposition															
	Reduced Storage of Water Bodies by Sediment Accumulation															
	Aquifer Overdraft															
	Insufficient Flows in Watercourses															
Water Quality, Groundwater	Harmful Levels of Pesticides in Groundwater															
	Excessive Nutrients and Organics in Groundwater															
	Excessive Salinity in Groundwater	X	X	X	X	X	X									
	Harmful Levels of Heavy Metals in Groundwater															
	Harmful Levels of Pathogens in Groundwater															
	Harmful Levels of Petroleum in Groundwater															
Water Quality, Surface	Harmful Levels of Pesticides in Surface Water															
	Excessive Nutrients and Organics in Surface Water															
	Excessive Suspended Sediment and Turbidity in Surface Water															
	Excessive Salinity in Surface Water	X	X	X	X	X	X									
	Water Quality – Colorado River Excessive Salinity	X	X	X	X	X	X									
	Harmful Levels of Heavy Metals in Surface Water															
	Harmful Temperatures of Surface Water															
	Harmful Levels of Pathogens in Surface Water															
	Harmful Levels of Petroleum in Surface Water															

Precipitation and Streams



Annual Precipitation (in/yr)



		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights	Surface	6,610.00	26,440.00
	Total Irrigated Adjudicated Water Rights	6,610.00	26,440.00
	USGS 09315000 Green River at Green River, UT	Total Avg. Yield	376,886
Stream Flow Data		May-Sept Yield	604,313
		MILES	PERCENT
Stream Data	Total Miles - Major (100K Hydro GIS Layer)	3,463.11	n/a
	303d (DEQ Water Quality Limited Streams)	55.83	2%

	Irrigation Efficiency:	<40%	40 - 60%	>60%
Percentage of Total Acreage	Cropland	65%	20%	15%
	Pastureland	60%	25%	15%

Watersheds & Total Maximum Daily Load (TMDL)

Watershed Projects, Plans, Studies and Assessments			
NRCS Watershed Projects		NRCS Watershed Plans, Studies & Assessments	
Name	Status	Name	Status
		Green River Salinity Study	planning phase
		Green River Salinity Study	planning phase
DEQ TMDL's		NRCS Comprehensive Nutrient Management Plans	
Name	Status	Number	Status
		1	Planned
		0	Implemented

AFO/CAFO

Animal Feeding Operations (AFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	0	5	0	0	0	4
No. of Animals						

Potential Confined Animal Feeding Operations (PCAFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	0	4	0	0	0	4
No. of Animals						

Confined Animal Feeding Operations - Utah CAFO Permit					
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Other
No. of Permitted Farms	0	0	0	0	0
No. of Permitted Animals					

Resource Concerns – AIR, PLANTS, ANIMALS

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Air Quality	Particulate matter less than 10 micrometers in diameter (PM 10)															
	Particulate matter less than 2.5 micrometers in diameter (PM 2.5)															
	Excessive Ozone															
	Excessive Greenhouse Gas: CO2 (carbon dioxide)															
	Excessive Greenhouse Gas: N2O (nitrous oxide)															
	Excessive Greenhouse Gas: CH4 (methane)															
	Ammonia (NH3)															
	Chemical Drift															
	Objectionable Odors															
	Reduced Visibility															
	Undesirable Air Movement															
	Adverse Air Temperature															
Plant Suitability	Plants not adapted or suited															
Plant Condition	Plant Condition – Productivity, Health and Vigor															
	Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act															
	Threatened or Endangered Plant Species: Declining Species, Species of Concern															
	Noxious and Invasive Plants	X	X	X	X				X					X		
	Forage Quality and Palatability															
	Plant Condition – Wildfire Hazard															
Fish and Wildlife	Inadequate Food															
	Inadequate Cover/Shelter															
	Inadequate Water							X								
	Inadequate Space															
	Habitat Fragmentation							X								
	Imbalance Among and Within Populations															
	Threatened and Endangered Species: Species Listed or Proposed for Listing under the Endangered Species Act	X	X	X	X	X		X	X	X			X	X		
Domestic Animals	Inadequate Quantities and Quality of Feed and Forage				X	X										
	Inadequate Shelter				X	X										
	Inadequate Stock Water															
	Stress and Mortality															

Noxious Weeds

Utah Noxious Weed List

The following weeds are officially designated and published as noxious for the State of Utah, as per the authority vested in the Commissioner of Agriculture under Section 4-17-3, Utah Noxious Weed Act:

- Bermuda grass** (cynodon dactylon)
- Canada thistle (cirsium arvense)
- Diffuse knapweed (centaurea diffusa)
- Dyers woad (isatis tinctoria L)
- Field bindweed (Wild Morning Glory) (convolvulus arvensis)
- Hoary cress (cardaria drabe)
- Johnson grass (sorghum halepense)
- Leafy spurge (euphorbia esula)
- Medusa head (taeniatherum caput-medusae)
- Musk thistle (carduus mutans)
- Perennial pepper weed (lepidium latifolium)
- Perennial sorghum (sorghum halepense L & sorghum alnum)
- Purple loosestrife (lythrum salicaria L.)
- Quack grass (agropyron repens)
- Russian knapweed (centaurea repens)
- Scotch thistle (onopordum acanthium)
- Spotted knapweed (centaurea maculosa)
- Squarrose knapweed (centaurea squarrosa)
- Yellow star thistle (centaurea solstitialis)

There are no additional noxious weeds declared by Grand County (2003).

Wildlife Species of Greatest Conservation Need

The Utah Comprehensive Wildlife Conservation Strategy (CWCS) prioritizes native animal species according to conservation need. At-risk and declining species in need of conservation were identified by examining species biology and life history, populations, distribution, and threats. The following table lists species of greatest conservation concern in the county.

AT-RISK SPECIES				
	Common Name	Group	Primary Habitat	Secondary Habitat
FEDERALLY-LISTED				
Endangered:	California Condor (experimental)	Bird	Cliff	
	Black-footed Ferret (extirpated)	Mammal	Grassland	High Desert Scrub
	Bonytail Chub	Fish	Water - Lotic	
	Colorado Pikeminnow	Fish	Water - Lotic	
	Humpback Chub	Fish	Water - Lotic	
	Razorback Sucker	Fish	Water - Lotic	
	Southwestern Willow Flycatcher	Bird	Lowland Riparian	Mountain Riparian
Threatened:	Mexican Spotted Owl	Bird	Cliff	Lowland Riparian
	Bald Eagle (breeding)	Bird	Lowland Riparian	Agriculture
Candidate:	Gunnison Sage-grouse	Bird	Shrubsteppe	
	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
Proposed:	(None)			
STATE SENSITIVE				
Conservation Agreement Species:	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bluehead Sucker	Fish	Water - Lotic	Mountain Riparian
	Roundtail Chub	Fish	Water - Lotic	
	Flannelmouth Sucker	Fish	Water - Lotic	
Species of Concern:	Allen's Big-eared Bat	Mammal	Lowland Riparian	Pinyon-Juniper
	American White Pelican	Bird	Water - Lentic	Wetland
	Big Free-tailed Bat	Mammal	Lowland Riparian	Cliff
	Burrowing Owl	Bird	High Desert Scrub	Grassland
	Cornsnake	Reptile	Lowland Riparian	Pinyon-Juniper
	Eureka Mountainsnail	Mollusk	Mountain Shrub	Rock
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Fringed Myotis	Mammal	Northern Oak	Pinyon-Juniper
	Greater Sage-grouse	Bird	Shrubsteppe	
	Gunnison's Prairie-dog	Mammal	Grassland	High Desert Scrub
	Kit Fox	Mammal	High Desert Scrub	
	Lewis's Woodpecker	Bird	Ponderosa Pine	Lowland Riparian
	Smooth Greensnake	Reptile	Mountain Riparian	Wet Meadow
	Spotted Bat	Mammal	Low Desert Scrub	Cliff
	Three-toed Woodpecker	Bird	Sub-Alpine Conifer	Lodgepole Pine
	Townsend's Big-eared Bat	Mammal	Pinyon-Juniper	Mountain Shrub
	White-tailed Prairie-dog	Mammal	Grassland	High Desert Scrub

*Definitions of habitat categories can be found in the Utah Comprehensive Wildlife Conservation Strategy.

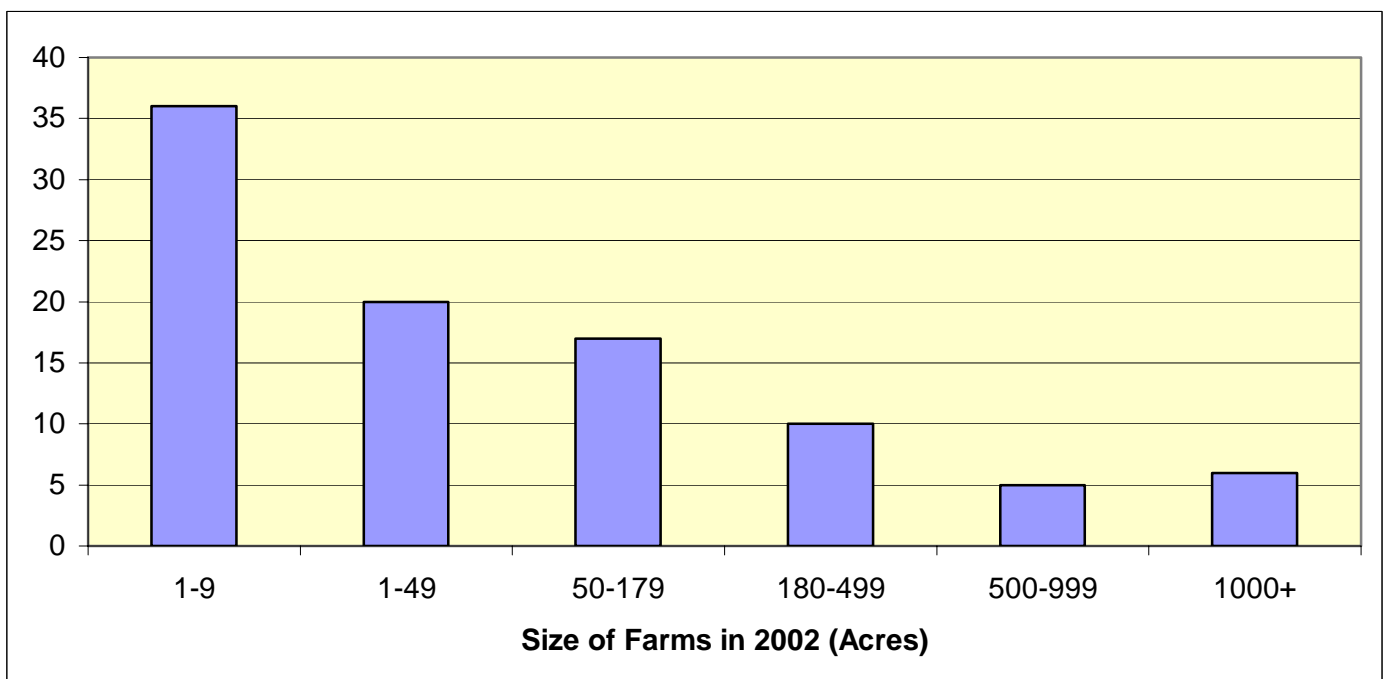
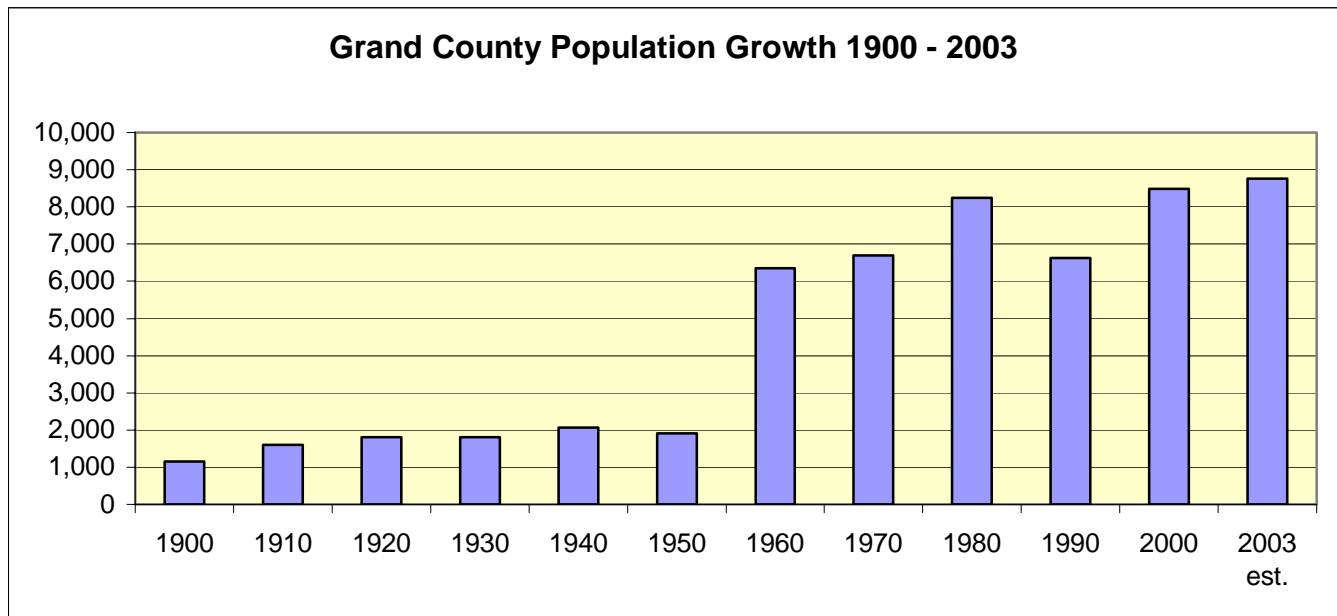
The Utah CWCS also prioritizes habitat categories based on several criteria important to the species of greatest conservation need. The top ten key habitats state-wide are (in order of priority):

- 1) **Lowland Riparian** (riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow)
- 2) **Wetland** (marsh <5,500 ft elevation; principal vegetation: cattail, bulrush, and sedge)
- 3) **Mountain Riparian** (riparian areas >5,500 ft elevation; principal vegetation: narrow leaf cottonwood, willow, alder, birch and dogwood)
- 4) **Shrub steppe** (shrubland at 2,500 - 11,500 ft elevation; principal vegetation: sagebrush and perennial grasses)
- 5) **Mountain Shrub** (deciduous shrubland at 3,300 - 9,800 ft elevation; principal vegetation: mountain mahogany, cliff rose, bitterbrush, serviceberry, etc.)
- 6) **Water - Lotic** (open water; streams and rivers)
- 7) **Wet Meadow** (water saturated meadows at 3,300 - 9,800 ft elevation; principal vegetation: sedges, rushes, grasses and forbs)
- 8) **Grassland** (perennial and annual grasslands or herbaceous dry meadows at 2,200 - 9,000 ft elevation)
- 9) **Water - Lentic** (open water; lakes and reservoirs)
- 10) **Aspen** (deciduous aspen forest at 5,600 - 10,500 ft elevation)

Resource Concerns – SOCIAL AND ECONOMIC

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Social and Economic	Non-Traditional Landowners and Tenants															
	Urban Encroachment on Agricultural Land	X	X	X				X								
	Marketing of Resource Products	X														
	Innovation Needs	X														
	Non-Traditional Land Uses															
	Population Demographics, Changes and Trends											X				
	Special Considerations for Land Mangement (High State and Federal Percentage)															
	Active Resource Groups (CRMs, etc)															
	Full Time vs Part Time Agricultural Communities											X				
	Size of Operating Units															
	Land Removed from Production through Easements											X				
	Land Removed from Production through USDA Programs															
Other																

Census and Social Data



Number of Farms: 94

Number of Operators:

- Full-Time Operators: 51
- Part-Time Operators: 43

Public Survey/Questionnaire Results:

- Adequate water supply
- Adequate Livestock Grazing
- Oil and Gas Resources – availability/exploration
- Invasive species
- Quality and Quantity of groundwater
- Adequate marketing of ag... products
- Soil loss/erosion
- T&E wildlife species
- Native plant species
- Urban impact in rural areas

Footnotes / Bibliography

1. General information about Grand County obtained from the official Grand County website:
<http://www.grandcountyutah.net/>
2. Location and land ownership maps made using GIS shape files from the Automated Geographical Reference Center (AGRC), a Utah State Division of Information Technology.
Website: <http://agrc.utah.gov/>
3. Land Use/Land Cover layer developed by the Utah Department of Water Resources. A polygon coverage containing water-related land-use for all 2003 agricultural areas of the state of Utah. Compiled from initial USGS 7.5 minute Digital Raster Graphic water bodies, individual farming fields and associated areas are digitized from Digital Orthophotos, then surveyed for their land use, crop type, irrigation method, and associated attributes.
4. Prime and Unique farmlands derived from SURGO Soils Survey UT607 and Soil Data Viewer. Definitions of Prime and Unique farmlands from U.S. Geological Survey,
http://water.usgs.gov/eap/env_guide/farmland.html#HDR5
5. Land Capability Classes derived from SURGO Soils Survey UT607 and Soil Data Viewer.
6. Tons of Soil Loss by Water Erosion data gathered from National Resource Inventory (NRI) data. Estimates from the 1997 NRI Database (revised December 2000) replace all previous reports and estimates. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is due to changes in statistical estimation protocols, and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information:
<http://www.nrcs.usda.gov/technical/NRI/>
7. Precipitation data was developed by the Oregon Climate Service at Oregon State University using average monthly or annual precipitation from 1960 to 1990. Publication date: 1998. Data was downloaded from the Resource Data Gateway, <http://dgateway-wb01.lighthouse.itc.nrcs.usda.gov/lighthouse>
8. Irrigated Adjudicated Water Rights obtained from the Utah Division of Water Rights.
9. USGS [USGS Real –Time Data for the Nation](#)
10. Stream length data calculated using Arc Map and 100k stream data from AGRC and 303d waters from the Utah Department of Environmental Quality.
11. General information about Grand County obtained from a Grand County website and the NRCS office.
12. The 2003 noxious weed list was obtained from the State of Utah Department of Food and Agriculture. For more information contact Steve Burningham, 801-538-7181 or visit their website at http://ag.utah.gov/plantind/noxious_weeds.html

13. Wildlife information derived from the Utah Division of Wildlife Resources' Comprehensive Wildlife Conservation Strategy (CWCS) (<http://wildlife.utah.gov/cwcs/>) and from the Utah Conservation Data Center (<http://dwrcdc.nr.utah.gov/ucdc/>).

14. County population data from the U.S. Census Bureau, Utah Quick Facts, <http://quickfacts.census.gov/qfd/states/49000.html>

15. Farm information obtained from the National Agricultural Statistics Service, 2002 Census of Agriculture. <http://www.nass.usda.gov/census/census02/volume1/index2.htm>